Continuous Maintenance

19 November 2001

Continuous Maintenance
Definition

Continuous Maintenance is the ***process*** whereby all levels of **maintenance** and **modernization** requirements are discovered, documented, validated, integrated, screened, estimated, tasked, planned, executed, and analyzed on a nearly continuous basis.

Implemented 1 June 1993

Continuous Maintenance
Goals

- Increase availability of ships for operations
- Promote a single force-wide maintenance process
- Shift maintenance strategy from ***time-based to condition-based*** where more cost effective
- Maintain real time knowledge of maintenance requirements
  - Maximize effectiveness of declining resources through identification and prioritization of all requirements
  - Establish Force maintenance requirements and obtain resources through deferred maintenance ***in CSMP*** and accurate history in ships 3M
- ***Level load planning and repair activities*** to minimize costs
- Measure maintenance results and perform trade-off analyses

Continuous Maintenance
CNO Maintenance Policy

OPNAVINST 4700.7 – Ship Maintenance Policy

- ***CSMP*** primary repository of ship material condition data
- Emphasize accomplishment on a ***continuous basis***
- Emphasize ***condition-directed*** maintenance
- Perform maintenance at ***lowest echelon practicable***
- Emphasize self-sufficiency
- ***Minimize*** depot maintenance
- Promote one way of doing business

Regional Maintenance CONOPS

- ***Continuous*** job screening, planning and

Continuous Maintenance
Fleet Directives

CLF/CFPINST 4790.3 -Joint Fleet Maintenance Manual

- ***Mentions*** Integrated Fleet Maintenance Management Model, Condition-Based and Continuous Maintenance
- ***Advance planning milestones developed jointly by the ship, TYCOM, and the planning and executing activities***
- ***Availability work package developed from NAVSEA and TYCOM instructions***

CNSLINST 9000.20 – Continuous Maintenance

- Implements CNO and CLF Directives and RM CONOPS

Continuous Maintenance
COMNAVSEASYSCOM Direction

Standardization Management Working Group (SMWG) Policy Book

- Online Specification Review
- Online Availability Status Report
- Work Package Integration Conference Agenda

SHAPEC Manual

- Provide Class F estimate within 5 working days
- Provide Class C estimate when specification written

Continuous Maintenance Process Improvement

- **Continuous Maintenance Implementation/Improvement Policy Letters.**
  - » Policy Letters
    - **One** - Eliminates redundant shipchecks, eliminates shipchecks when reusable products are available, minimizes out of area shipchecks when other ships of the class are locally available, and limits overseas shipchecks to emerging requirements.
    - **Two** - Establishes requirement for COMNAVSURFLANT funded or directed visit teams to document all discrepancies discovered on 2Ks. Other teams are encouraged to follow this policy as practical.
    - **Three -** Establishes COMNAVSURFLANT policy to do sea valve maintenance based on objective evidence of material condition.
    - **Four -** Implements the the use of On Line Specification Review for all TYCOM specifications for all CNO and TYCOM scheduled depot availabilities.
    - **Five -** Establishes as COMNAVSURFLANT policy the preferred use of Integrated Class Maintenance Plan (ICMP) tasks over local, unique tasks to satisfy validated maintenance requirements when appropriate, and to validate scheduled ICMP tasks during assessments.
    - **Seven** - Provides tank and void assessment policy for steel hulled ships.
    - **Eight** - Provided policy for placing Online Availability Status Report (ASR) into operation.
    - **Nine -** Provides policy for ventilation cleaning using a new IDIQ Contract.

Continuous Maintenance Process Improvement

- **Continuous Maintenance Implementation/Improvement Policy Letters.**
  - » Policy Letters (Continued)
    - **Ten** - Establishes Requirements that ships undergoing scheduled depot availabilities must accomplish for the availability to be considered successfully completed.
    - **Eleven A -** Establishes COMNAVSURFLANT policy on naming and maintaining availabilities in RMAIS.
    - **Twelve -** Establishes COMNAVSURFLANT policy requiring Maintenance Managers and Brokers to screen all valid depot level work candidates in RMAIS to a planning activity for an estimate within five working days.
    - **No Number -** Established COMNAVSURFLANT policy on tasking and funding of visual inspections of steel tanks during scheduled availabilities.

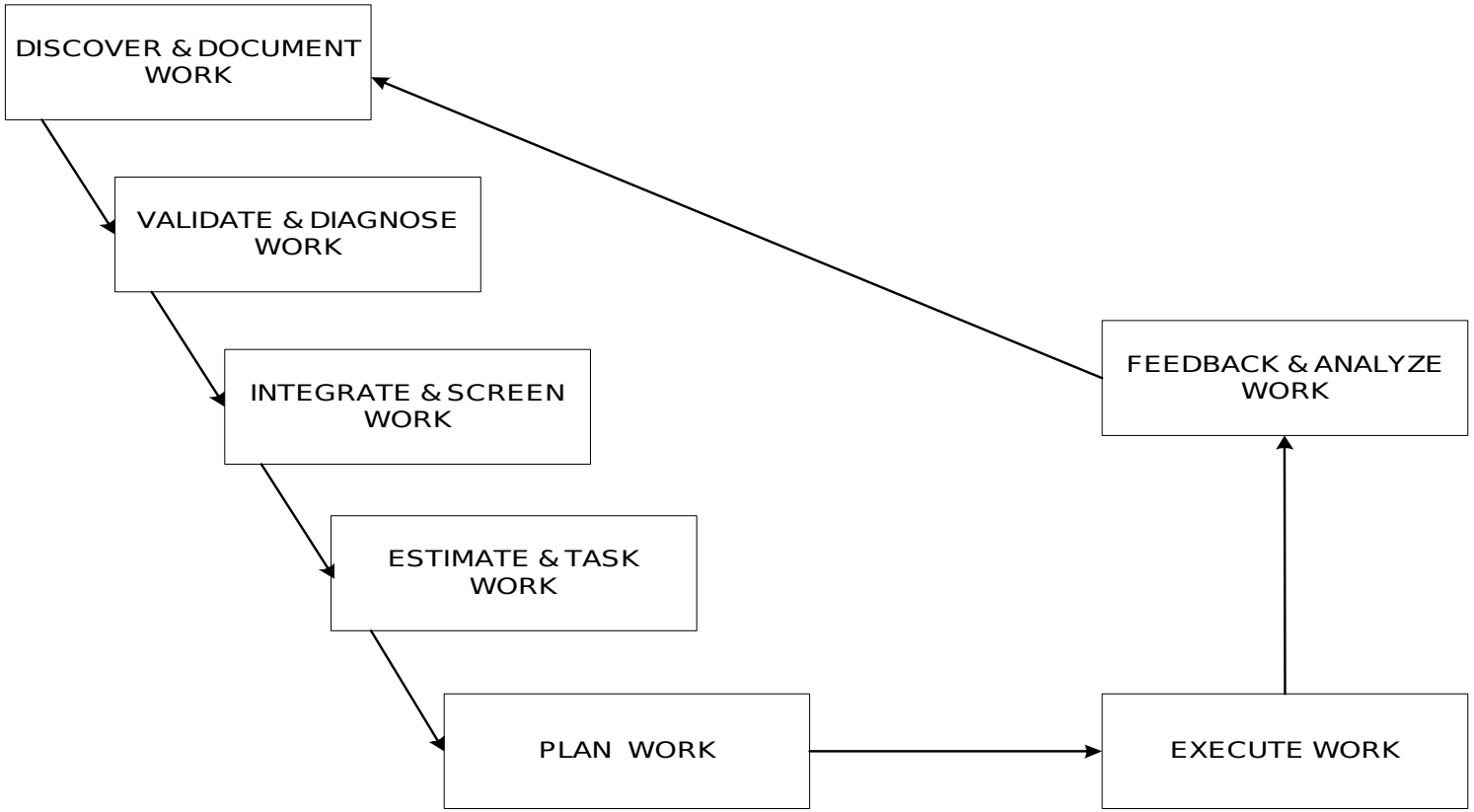
Continuous Maintenance Process Improvement

- **Continuous Maintenance Implementation/Improvement Policy Letters.**
  - » Process Letters
    - **One -** Provides guidance on establishing administrative work centers in ship's OMMS (SNAP).
    - **Two -** Cancelled.
    - **Three -** Provides detailed guidance for off-ship activities documenting work candidates.
    - **Four -** Provides detailed process guidance for planning activity estimate documentation**.**
    - **Five - through Seven -** Cancelled.
    - **Seven A -** Provides detailed guidance for planning activities in preparing the Scheduled Depot Availability Advanced Planning Status Reports.
    - **Eight -** Provides detailed guidance on planning and conducting Work Package Integration Conferences (WPIC).
    - **Nine through twelve -** Cancelled.
    - **Twelve A** - Provides additional guidance to assessment activities on procedures for documenting discrepancies on 2KILOs for entry into the ship's CSMP.
    - **Thirteen -** Provides detailed guidance for establishing continuous assessment availabilities to better manage assessment visits.
    - **Fourteen -** Provides detailed guidance for reaching dry docking decisions.
    - **Fifteen -** Provides detailed guidance for Managing Scheduled and Continuous Maintenance Depot Availabilities.
    - **Sixteen -** Provides detailed guidance on employing RMAIS in advance planning for LHA/LHJD SHAPEC (NNSY)

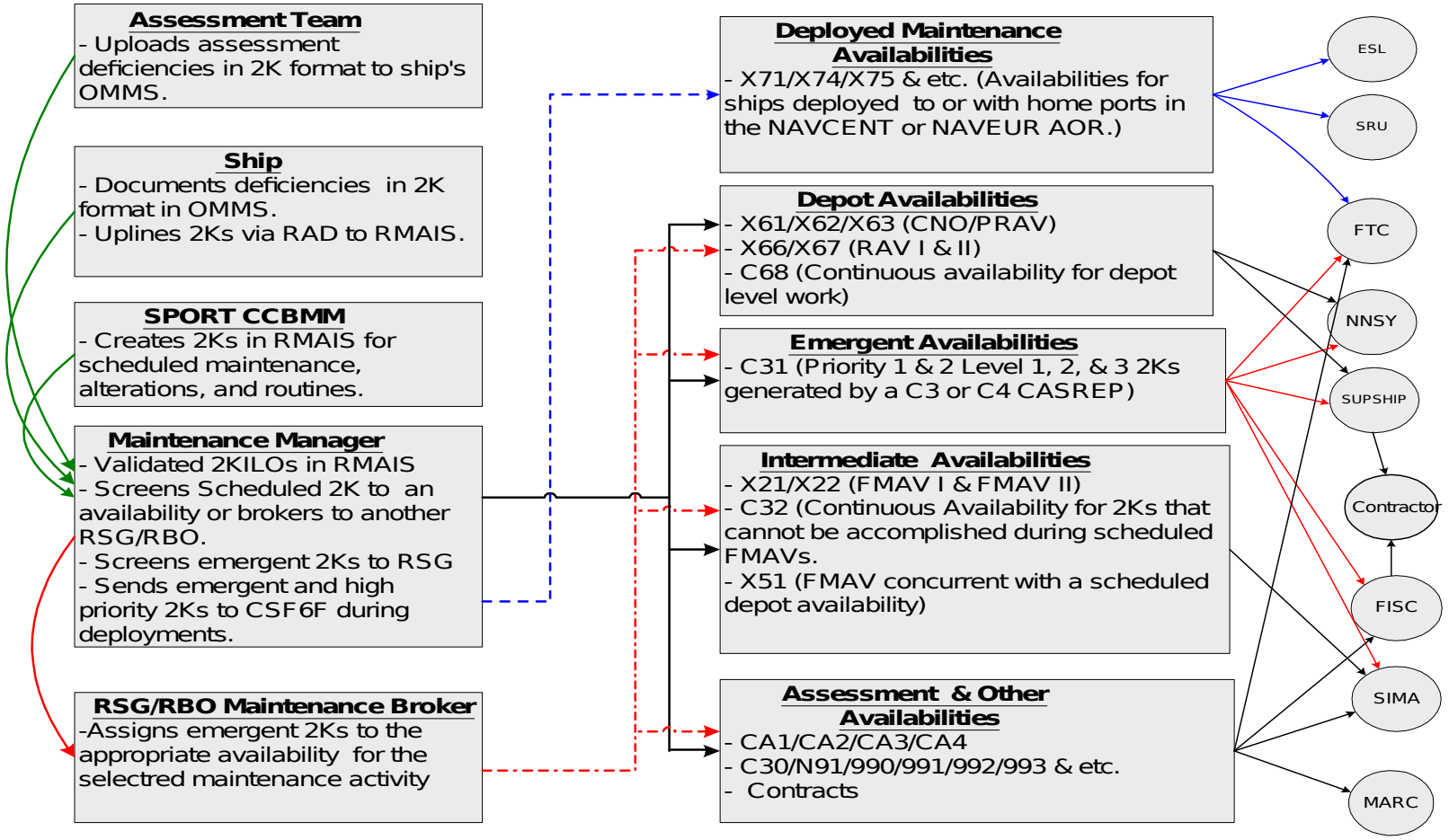
Continuous Maintenance Process Improvement

- **Continuous Maintenance Implementation/Improvement Policy Letters.**
  - » Process Letters (Continued)
    - – **Seventeen -** Establishes Guidance for scheduling and completing Mid-Cycle Maintenance Project Reviews (McMpr).

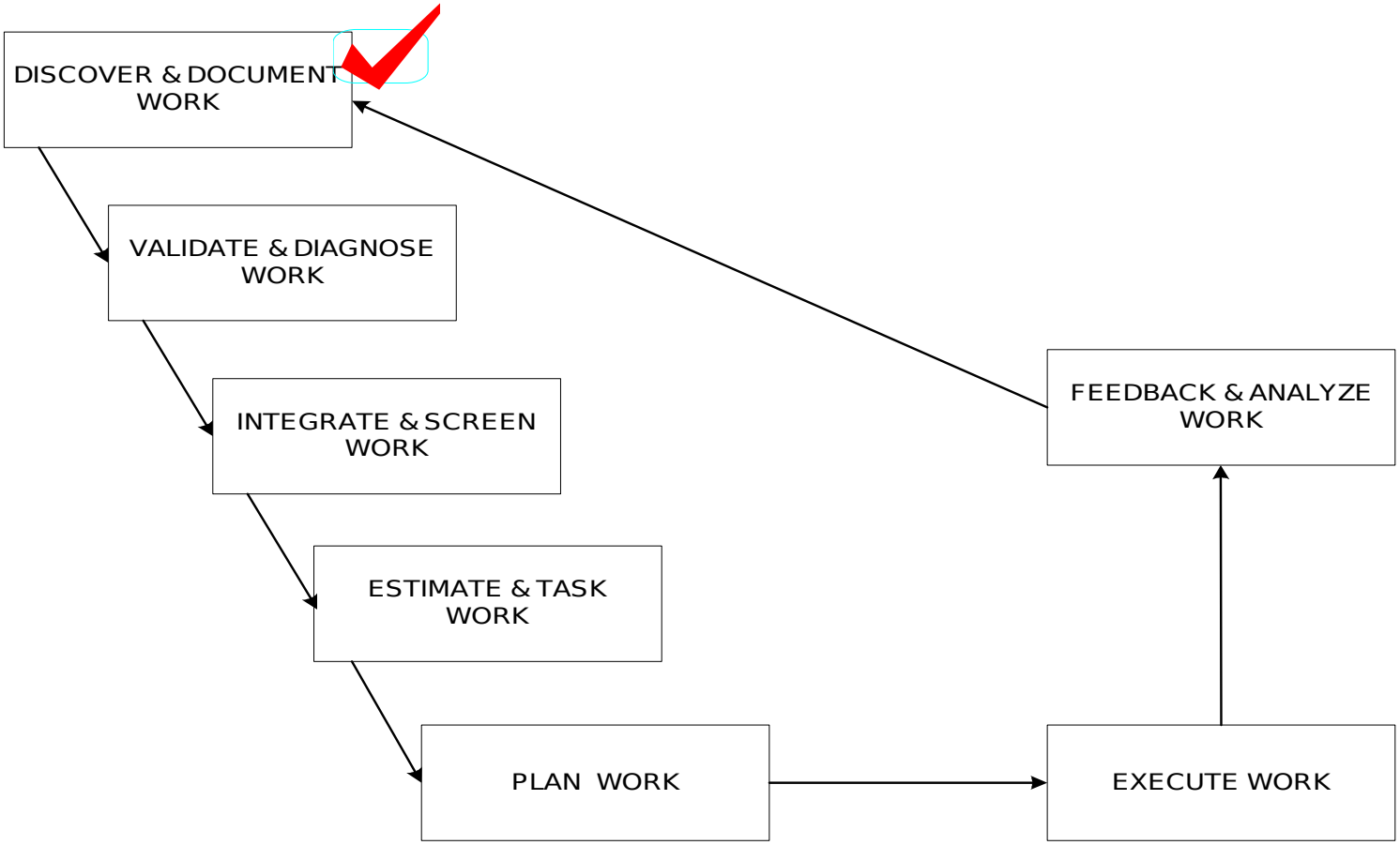
Continuous Maintenance
Work Flow



Continuous Maintenance
Work Flow - Computer View


Assessment Team
- Uploads assessment deficiencies in 2K format to ship's OMMS.
Ship
- Documents deficiencies in 2K format in OMMS.
- Uplines 2Ks via RAD to RMAIS.
SPORT CCBMM
- Creates 2Ks in RMAIS for scheduled maintenance, alterations, and routines.
Maintenance Manager
- Validated 2KILOs in RMAIS
- Screens Scheduled 2K to an availability or brokers to another RSG/RBO.
- Screens emergent 2Ks to RSG
- Sends emergent and high priority 2Ks to CSF6F during deployments.
RSG/RBO Maintenance Broker
-Assigns emergent 2Ks to the appropriate availability for the selectred maintenance activity
Deployed Maintenance Availabilities
- X71/X74/X75 & etc. (Availabilities for ships deployed to or with home ports in the NAVCENT or NAVEUR AOR.)
Depot Availabilities
- X61/X62/X63 (CNO/PRAV)
- X66/X67 (RAV I & II)
- C68 (Continuous availability for depot level work)
Emergent Availabilities
- C31 (Priority 1 & 2 Level 1, 2, & 3 2Ks generated by a C3 or C4 CASREP)
Intermediate Availabilities
- X21/X22 (FMAV I & FMAV II)
- C32 (Continuous Availability for 2Ks that cannot be accomplished during scheduled FMAVs.
- X51 (FMAV concurrent with a scheduled depot availability)
Assessment & Other Availabilities
- CA1/CA2/CA3/CA4
- C30/N91/990/991/992/993 & etc.
- Contracts
ESL
SRU
FTC
NNSY
SUPSHIP
Contractor
FISC
SIMA
MARC

Continuous Maintenance
Work Flow

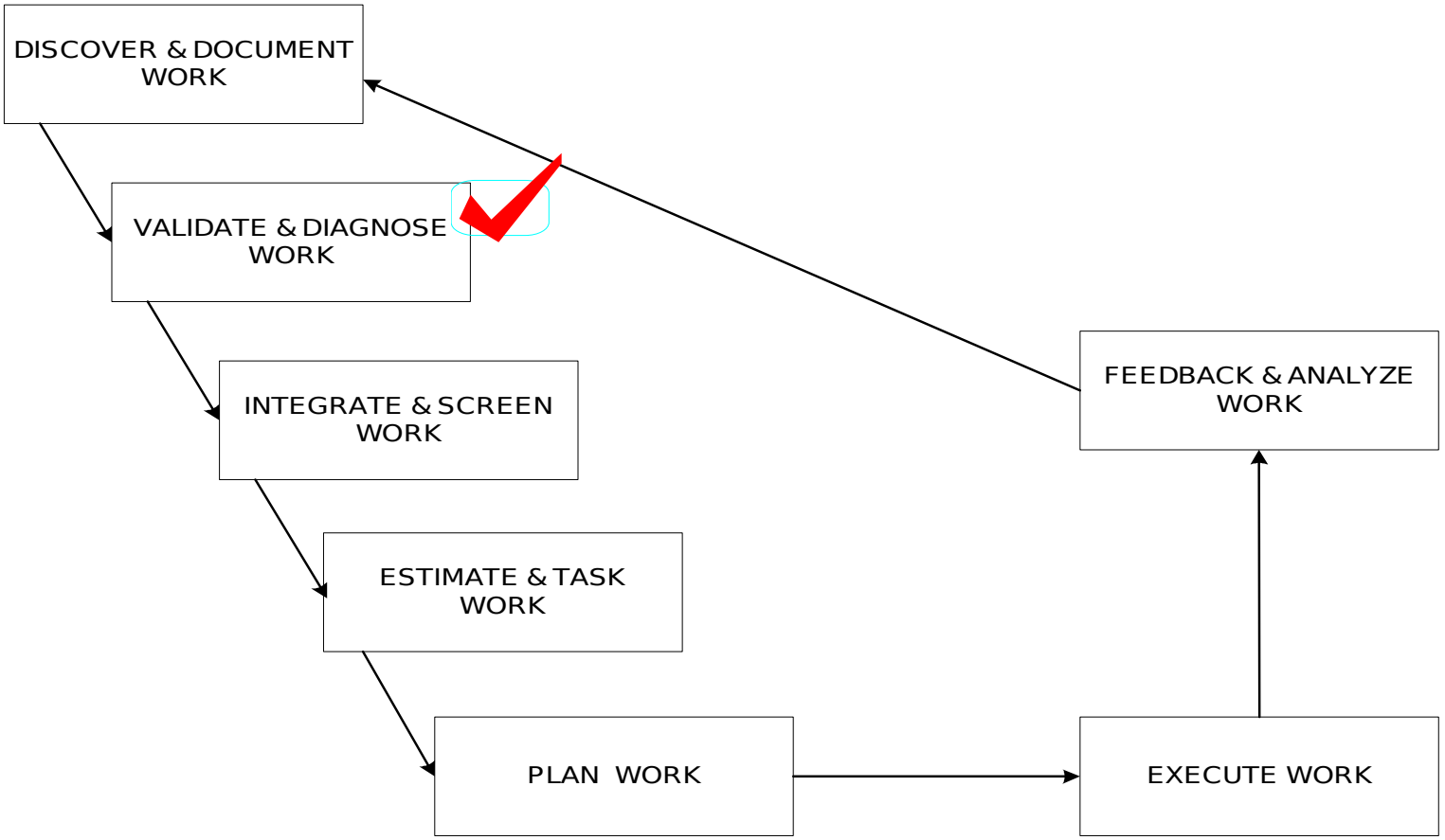


Continuous Maintenance
Discover and Document

- Work ***discovered***
  - Condition (95-97%)
    - Operations – Watch Stander
    - Zone Inspection – Commanding Officer
    - Assessment Visit – Assessment Activity
  - Time - Integrated Class Maintenance Plan (3-5%)
  - Alteration
- Work ***documented*** as discovered
  - ***CSMP sole repository*** of ship maintenance requirements
  - Work documented by discovering activity

Everything goes in the CSMP !!!

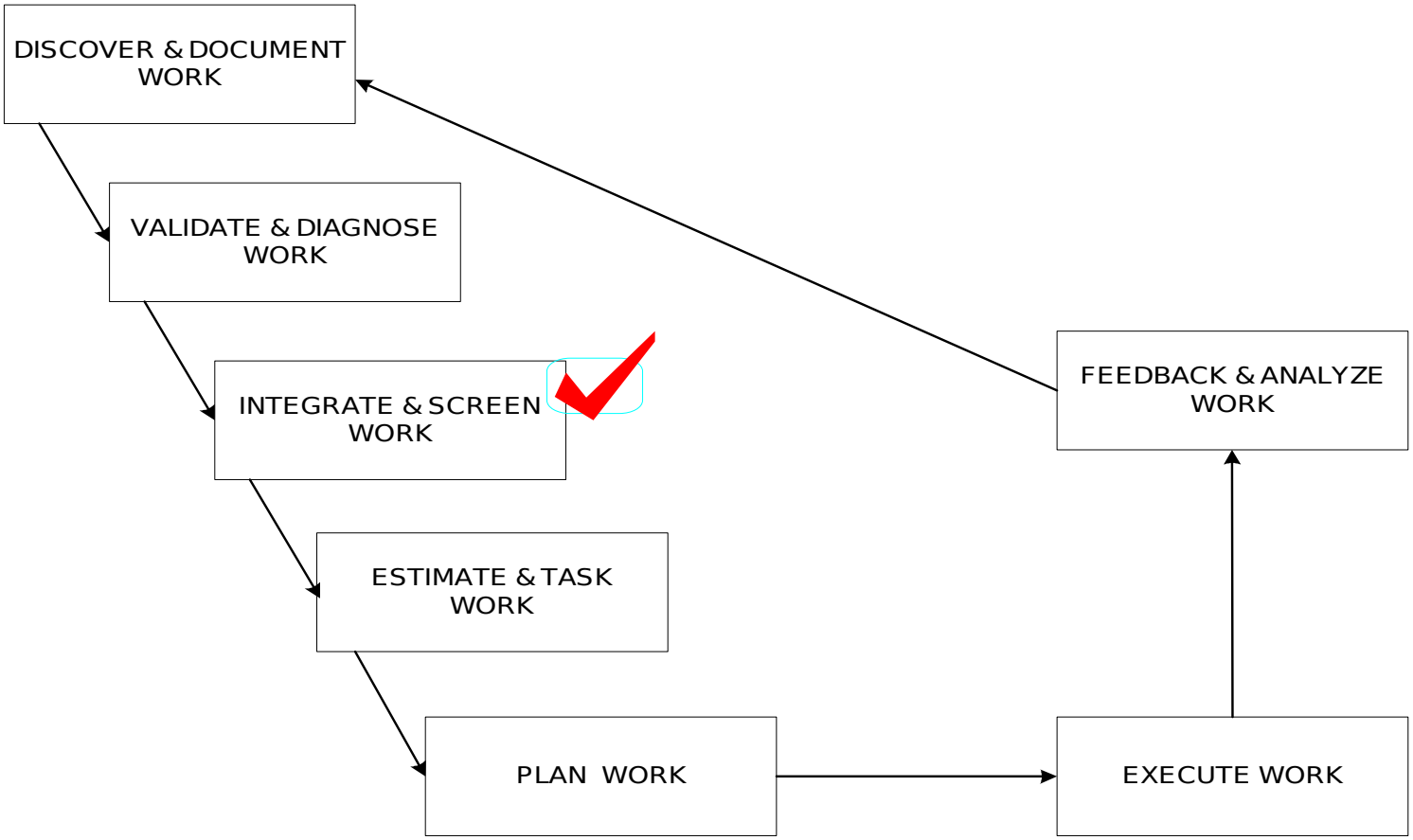
Continuous Maintenance
Work Flow



Continuous Maintenance
Validate and Diagnose

- Work **validated** as documented
  - MM validates 2KILOs
  - MM responsible for quality of 2KILOs forwarded to repair activities
- Symptoms **diagnosed,** when necessary
  - MM diagnoses symptoms
  - MM obtains technical support for those outside his area of expertise

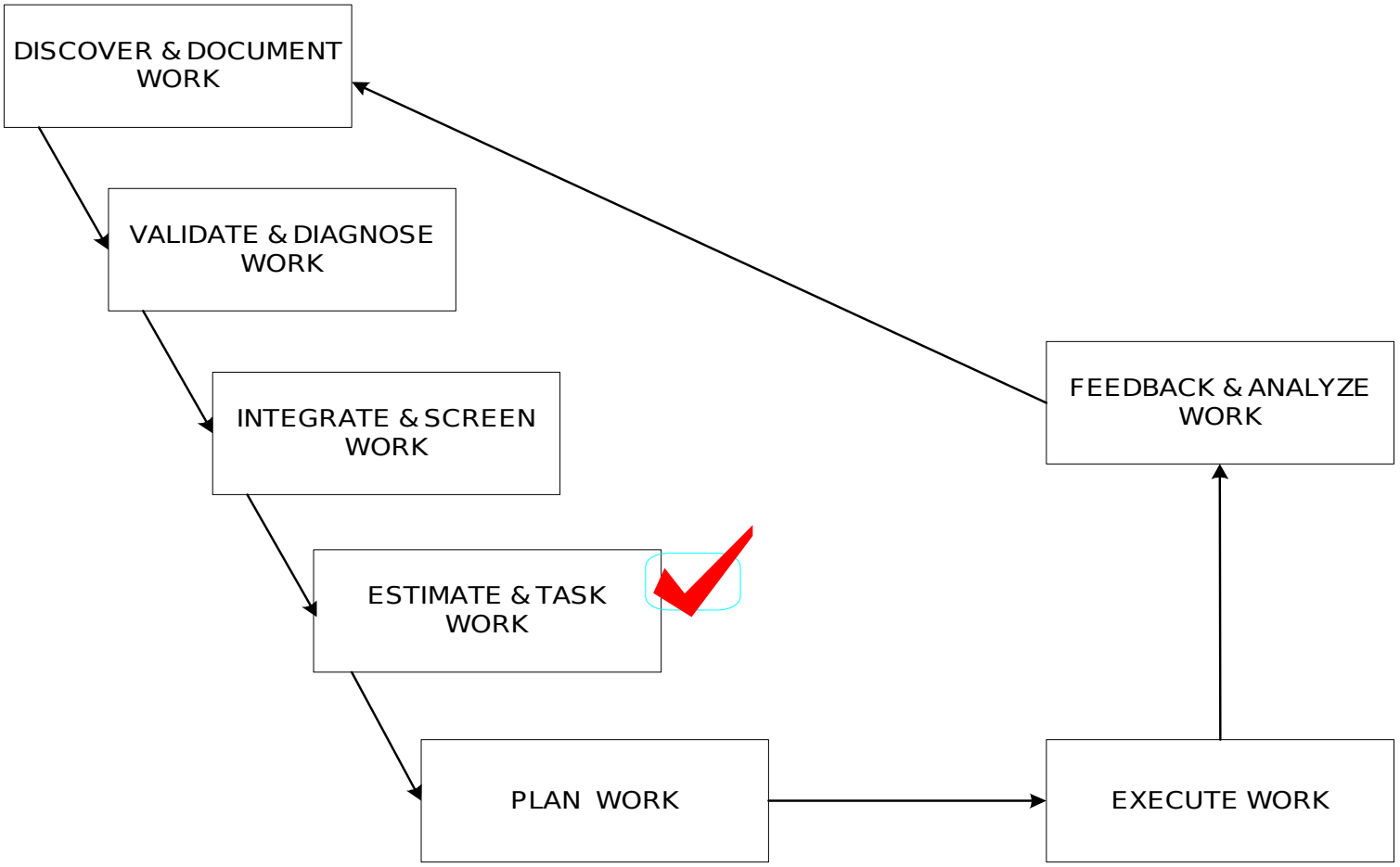
Continuous Maintenance
Work Flow



Continuous Maintenance
Integrate and Screen

- Work **integrated** into packages as validated
  - Work scheduled concurrently for synergism or separately to de-conflict
  - Repairs added or removed as alterations churn
  - Work is integrated back out when industrial loading requires
- Work **screened** as validated Work is screened to availabilities and to planning activities continuously to level load planning

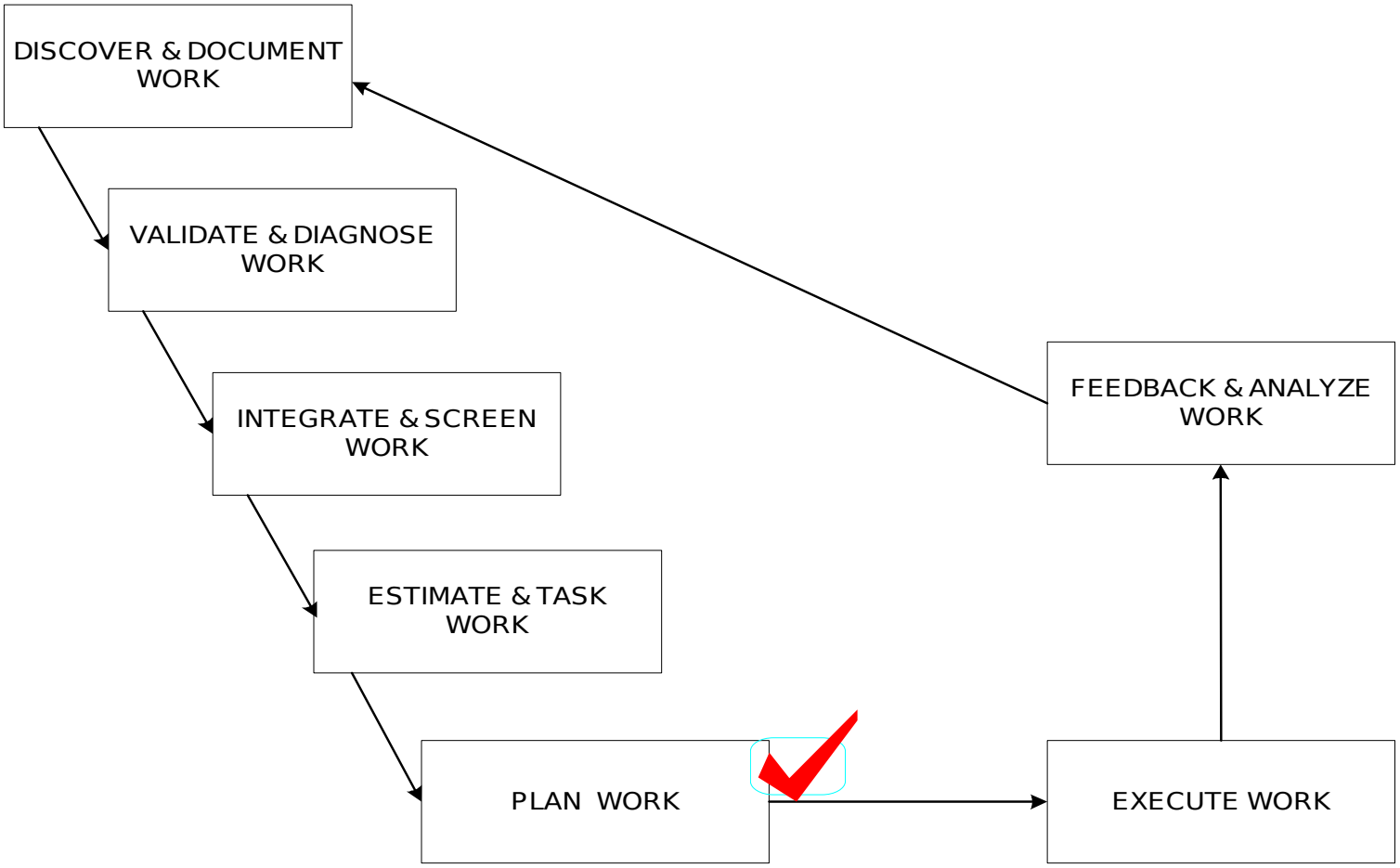
Continuous Maintenance
Work Flow



Continuous Maintenance
Estimate and Task

- Work **estimated** as screened
  - Planner provides Class F bare bones estimate ***within five working days***
  - Provides MM and TDO a view of present package cost. MM and TDO can “open or close the work flow valve”
  - Minimizes last minute work package churn
  - Provides costed backlog - required report to Congress
- Work **tasked** to planner
  - Based on funding, planner tasked to proceed or wait
  - Only funded work is planned

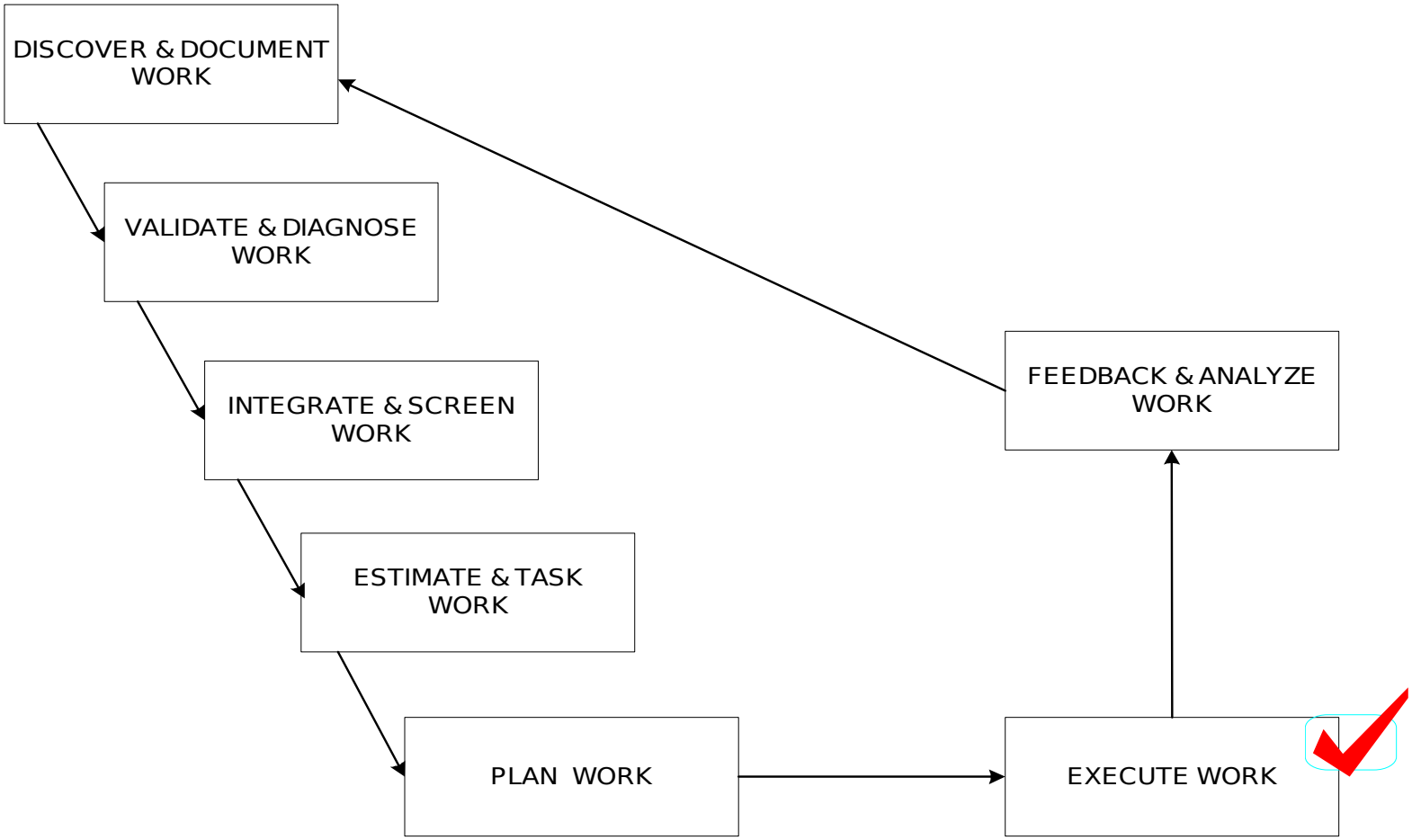
Continuous Maintenance
Work Flow



Continuous Maintenance
Plan

- Work **Planned** as tasked
  - Work Specifications (4E Specifications and Job Summaries) reviewed and approved as planned
    - Electronically provided to MM and Ship's Force
      - Ship's Force reviews ***work scope*** and comments to MM in ***five working days***
      - MM comments on ***work scope***, and sometimes technical approach
  - Once work planned, job available for execution-of-opportunity by Regional Business Office (RBO)

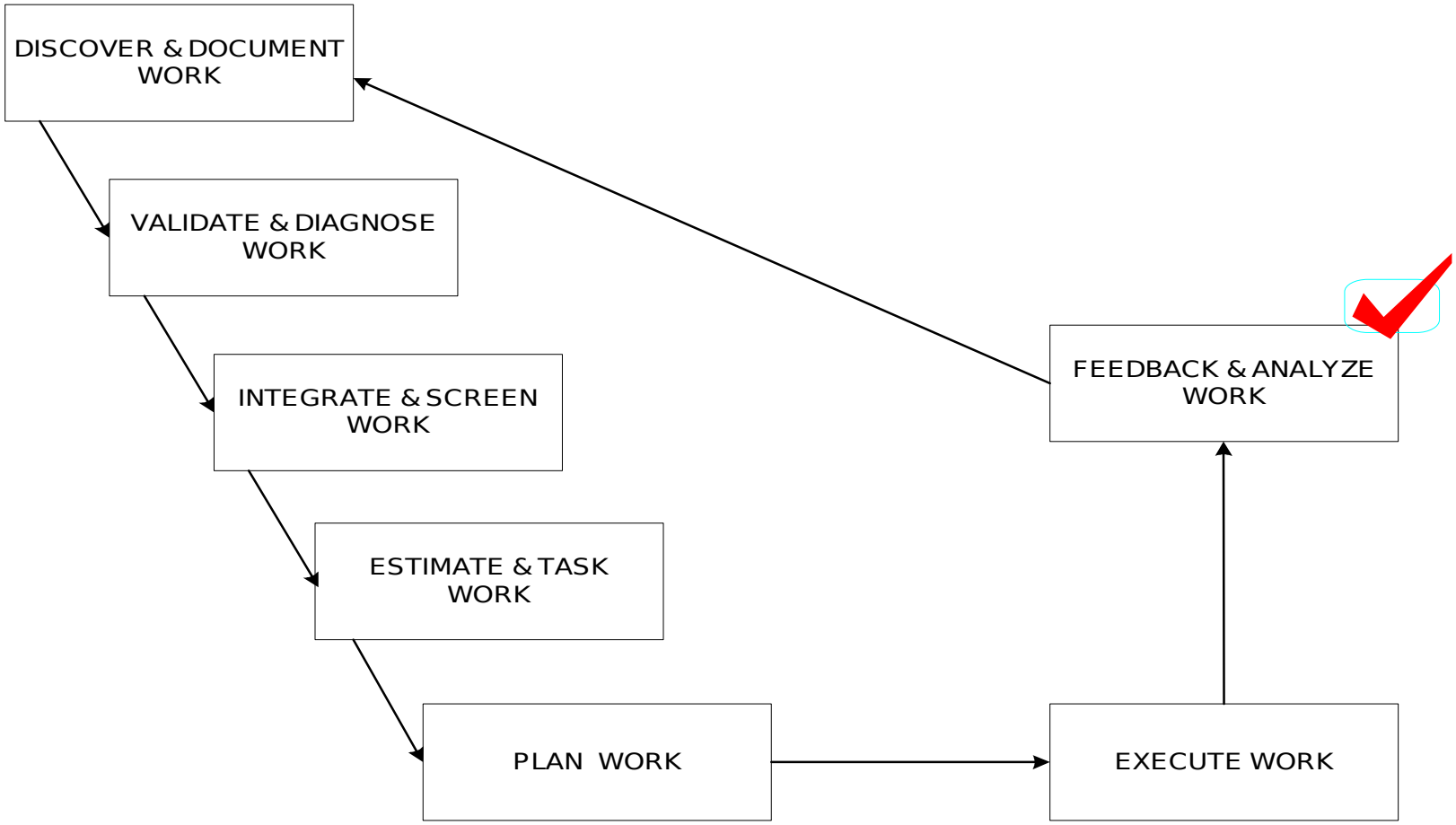
Continuous Maintenance
Work Flow



Continuous Maintenance
Execute

- Work **Executed** at best opportunity
  - Scheduled availabilities remain a vital part of the business process
    - CNO/PRAV (RAV in lieu of CNO)
    - RAV I
    - RAV II
  - Some work pulled from scheduled availability work packages to level load organic shops
    - TDO moves entire packages
    - RSG moves individual jobs

Continuous Maintenance
Work Flow



Continuous Maintenance
Feedback

- Collect and analyze the results
- Work Analysis vital to ...
  - Re-engineering hull, system and equipment maintenance strategy
    - Class Maintenance Plan
  - Improve Material Assessment Process
    - SEMAT/C5RA/AVCERT
  - POM/Budget Maintenance Requirements
  - Lessons learned for better planning and executing process

Continuous Maintenance Additional Information

- For additional information on any phase of continuous maintenance work flow or for additional background on continuous maintenance please review the CNSL Maintenance Curricula Resources found at http://maintenance university/